

I. List 3-5 Student Learning Outcomes for students enrolled in your program.

These should be broad overarching learning goals. They are bigger than objectives.

Being derived from the college's expectation of excellence in the mathematics program and allied disciplines, the math program SLOs concentrate on teaching the students problem-solving.

In particular, the program SLOs include the students' ability to

- a) clarify the problem in question by breaking it apart into manageable sub-questions;
- b) discern and describe relevant factors; do appropriate observations, data collection, and analysis;
- c) explicitly support the evidence or line of thinking that led to a particular outcome.

II. Align the Program Level SLOs with the College Goals.

Briefly discuss how your program meets the goals of the college.

All of the above-mentioned SLOs aim at mastery of oral and written communication skills, information competency, informational literacy, scientific and quantitative reasoning, critical analysis/logical thinking, and the ability to acquire knowledge through a variety of means. They serve the goal of imparting a rich body of knowledge, principles, and methodology of mathematical science that will enable students to cope with the ever-changing challenges of today and tomorrow that are cross-disciplinary and interdisciplinary in nature, to be productive individuals and life long learners.

Hence, the program level SLOs are aligned with and support the College goals by addressing their key elements, most importantly, educational excellence, supportive learning environment, and rigorous curriculum.

II. Assess the student success in your program.

How do you know students learned the core SLOs by the completion of curriculum/program. Include data to support these findings.

Our assessment of student success in the program is based on

- a) Instructor evaluations of students' written and oral feedback;
- b) Instructor evaluations of students' homework assignments, tests, projects, etc;
- c) Success rates per course;
- d) Retention rates per course;
- e) Placement test results;
- f) Informal student surveys to assess where the students transferred and if they are successful at a four-year institution, etc;
- g) Communication with the faculty of four-year on the level of preparation of our students.

Problem solving assessment:

The department has developed assessment criteria based on the collectively designed departmental finals and comparison of the students' success in particular areas of each course. We administered at least five departmental finals with common questions embedded in them and collected on students' success in meeting the set outcomes. Participation of the instructors in incorporating those common questions was unanimous.

Over the years, we have recognized that a consistently challenging outcome for the students to meet is problem solving. For example, on Spring 2006 departmental finals common questions that focused on problem-solving had the average score of only 59%. In response to this data the department decided to develop and implement extended versions of basic skills classes ? Math 101A&B and Math 103 A&B, to support them with a Lab components, to teach a separate basic skills workshop (Math 90) that addresses deficiencies in basic skills and problem solving across the curriculum,

Goals included helping the students to be more successful in Math 95 through Math 103 and beyond; helping to fill the ?think critically and solve problems efficiently? core outcome in general education.

Value-added assessment:

The math department administered pre- and post- tests in basic skills classes focusing on basic skills that the students are expected to bring into each class and carry to the next one at the exit. We plan to use this to determine if we need to supplement each course with more review materials and give immediate feedback to the students on their readiness for the course.

Retention assessment:

The department introduced stretch versions of basic skills classes (Math 95, 101, and very recently 103) to target at-risk student populations.

Placement assessment:

The math placement tests were reviewed and replaced with computer-based Accuplacer which, the department believes, is placing students more accurately into the appropriate math classes with less ?over? and ?under? placement. Now a student is less likely to be overplaced by guessing right answers in the placement tests. The

test is web-based and dynamically generated, which excludes memorization of the test's questions.

Outcomes of assessment of student success in the program

We know the students learned the core SLOs by the completion of curriculum/program from the Final tests? and other assessment tools.

IV. Document student success/achievement in the program.

Possible documentation materials might include Degrees, Awards, Transfer, Portfolios, Capstone Assignments, Success in Job Placement, etc.)

V. Note areas for future improvement.

Address needs of program like curricular innovation, resource allocation, upgrading facilities, technology, unit allocation, staffing, etc.

Student learning in the math program can be improved by a variety of measures in the following areas:

Instruction:

- a) continuing to provide state of the art instruction by highly-qualified faculty holding advanced degrees in the discipline;
- b) increasing course offerings and redundancy;
- c) continuing to develop and maintain a supportive learning environment that promotes interest and pride in academic pursuit and achievement and helps the students to fulfill their personal and professional goals;
- d) supporting workforce development in providing training for a wide range of occupations requiring mathematical proficiency;
- e) encouraging broader community involvement in and use of the COM math program by means of curricular offerings in a variety of formats, cultivating partnerships with four-year schools and K-12 educators;
- f) upgrading classrooms and Math Lab with computers;
- g) acquiring computer software to support instruction and learning;
- h) hiring more full-time faculty and tutors.

Curriculum and articulation:

The curriculum, articulation processes, tools, validation, and guidance for the program self-assessment can be improved by an on-going comprehensive program review, especially addressing our developmental curriculum. The math faculty will continue to discuss what really matters? factors that directly influence students' success, retention, and the ability of students to take what they learn and transfer it to other areas of their education and lives.

The improved self-assessment process will become the foundation upon which program will be developing a platform to advocate for its needs in achieving educational excellence. The product of self-assessment will provide valuable information for decision-making and resource allocation by the math program.

The curriculum and articulation can be improved by close communication and cooperation with our counterparts at UCSF system (and other four-years schools) to ensure course content and numbering are in alignment. The goal is to ensure seamless transfer of our students to other colleges and universities.

Educational Planning:

Through constant gathering and analysis of the internal and external data, the program review process will continually improve and adjust to the changing needs of a diverse student population at COM. Aligning the program review process with the COM's Mission Statement, Educational Master Plan, and the Standards for Accreditation will direct all assessment toward better student learning and success.

Faculty Unit Allocation and Staff Support:

We need to hire more full-time faculty and tutors.

Instructional Equipment and Materials:

We need to upgrade a number of rooms that math program uses in the Science building to smart classrooms will enhance student learning via technology (e.g. video clips, animation, demonstration, web-based instruction, software tutorials). Our computers need to be replaced every 3 years.

Scheduling:

The math program will continue to improve redundancy and flexibility in its scheduling practices.

Facilities:

With the Bond issue, math program is being relocated to new facilities. At the new facilities, the program will be able to increase the student capacity both in the lecture class and the lab, support instruction with modern technology and improve its efficiency.